REMARKS/DISCUSSION OF ISSUES

Claims 1-6 are pending in the application. Claims 1-5 are rejected. Claim 5 is objected to. Claim 5 is currently amended. Claim 6 is new.

The Examiner's acceptance of the drawings and acknowledgement of the claim for priority and receipt of copies of the priority documents is noted with appreciation.

Claim 5 is objected to by the Examiner because the phrase 'the coating' has no antecedent basis. A new claim 6 is presented in which the means for protection against oxidation is specified to be a coating. Claim 5 is currently amended to change its dependency from claim 1 to claim 6, thereby providing antecedent basis for the phrase 'the coating'.

In view of these changes, it is believed that the objection has been overcome and should be withdrawn.

Claims 1 and 5

Claims 1 and 5 are rejected under 35 USC 103(a) as being unpatentable over Meijer (US patent 3,105,867) in view of Leroy et al. (US patent 3,868,277) (herein 'Leroy').

Meijer teaches an electric lamp in which oxidation protection of a molybdenum conductor (31), which is partly embedded in the seal, is provided by an intermediate layer (32) of molybdenum-chromium alloy and an outer layer (33) of chromium and/or chromium oxide.

Leroy teaches oxidation protection of a mild steel substrate, such as a sheet or wire, containing free carbon. The oxidation protection is provided by a decarburized coating of carbide-forming constituents, specified as Cr, Ni, Co, Mo, or an alloy of two or more of these constituents, or an alloy of one of these constituents with Fe or another element.

The Examiner argues that Leroy is in the same field of endeavor of oxidation protection. However, Leroy is concerned with protection of steel substrates, and more particularly, with corrosion resistance in an aqueous medium of mild steel which contains free carbon.

Thus, the physical and chemical nature of the substrate to be protected, as well as the environment for protection, are very different from those of Meijer and Applicant, i.e., a molybdenum substrate in an electric lamp.

In view of the well-known unpredictability of the chemical reactions of different materials in different environments, the skilled artisan would not consider the teachings of Leroy to fall within 'the same field of endeavor'. Stated differently, the skilled artisan would not consider Leroy's teachings regarding corrosion resistance of steel in an aqueous medium to have any relevance to the very different problem faced by Meijer and Applicant.

With respect to the particular alloys claimed by Applicant, the Examiner states that it would be within the general skill in the art to select a known material on the basis of its suitability for the intended use.

However, Leroy does not teach that his constituents are suitable for any use other than the formation of corrosion-resistant coatings for mild steel containing free carbon.

Moreover, Leroy does not teach or suggest that any of the specific alloys claimed by Applicant should be selected from among the wide range of combinations possible from his broad disclosure, i.e., that any alloy of two or more of the constituents Cr, Ni, Co, Mo, or any alloy of one of these constituents with Fe or another element, are suitable for his purpose.

Moreover, Applicant's claimed group of alloys includes Cr-B, and B is not even mentioned as a possible constituent by Leroy.

Thus, even if the skilled artisan arbitrarily sought to apply Leroy's teachings to the protection of molybdenum in a lamp environment, Leroy lacks any guidance which would lead to the specific group of alloys claimed by Applicant.

Regarding claim 5, the Examiner argues that Meijer discloses a layer thickness of from 1-6 μm. However, Meijer discloses that his intermediate layer has a thickness of from 1-8 μm, and his outer layer has a thickness of from 0.5-4 μm.

Moreover, these layers have different compositions, and therefore the considerations for their optimum thicknesses are different from those of Applicant's claimed compositions.

For all of the above reasons, claims 1 and 5 are patentable over the combined teachings of Meijer and Leroy, and the rejection is in error and should be withdrawn.

Claims 2 and 3

Claims 2 and 3 are rejected as being unpatentable over Meijer and Leroy in view of Scruggs (US patent 3,235,379).

Scruggs is cited to show a Cr-Co alloy with 80-99 atom percent Cr, as required by claim 2, and with 94-96 atom percent Cr, as required by claim 3.

Scruggs teaches a Cr-Co alloy containing less than 10 weight percent of a spinel-like oxide, which is said to improve the malleability of the alloy. Claim 2 of Scruggs calls for Cr and the oxide together to be present in the amount of from 10-35 weight percent, while claim 3 calls for the combination of Cr and the oxide to be less than 70 weight percent.

The Examiner argues that Scruggs teaches that Cr should be present in the amount of 10-100 weight percent, referring to Tables I and II and col. 3, lines 18-21.

Tables I and II list data for a series of samples in which the amount of Cr varies from 10-90 weight percent (Table II) and the combined amount of Cr and oxide varies from 10-90 weight percent. Col. 3, lines 18-21 states that increased malleability is seen for amounts of Cr up to 100 weight percent.

These disclosures do not contain any guidance regarding preferred ranges for Cr. In fact, as already point out above, Scruggs teaches that Cr and the oxide together should be present in the amount of from 10-35 weight percent, and that the combination of Cr and the oxide should be less than 70 weight percent.

These disclosures do not teach or suggest to the skilled artisan to restrict the amount of Cr to the ranges of 80-99 atom percent, preferably from 94-96 atom percent, as called for by Applicant's claims 2 and 3. On the contrary, these disclosures lead away from any ranges in which Cr is present in amounts greater than 70 weight percent.

Accordingly, claims 2 and 3 are patentable over the combination of Meijer, Leroy and Scruggs, and the rejection should be withdrawn.

Claims 1 and 4

Claims 1 and 4 are rejected under 35 USC 103(a) as being unpatentable over Meijer in view of Schneider (US patent 3,932,198).

Schneider discloses an aqueous coating solution for forming a corrosion resistant coating on a metal, the metal

being defined as iron and its alloys including steel, and zinc and its alloys, including a galvanized steel coating.

Schneider's aqueous solution contains trivalent Cr and one or more of the cations of Mn, Bi, Sb, Sn, Zn and Mo, although Mn is said to be preferred. See, e.g., col. 3, line 29.

The Examiner urges that Schneider is in the same field of endeavor of corrosion resistant coatings. However, Schneider, like Leroy, is concerned with substrates of iron and steel, although Schneider also includes substrates of zinc and its alloys, e.g., galvanized iron substrates. See col. 2, lines 27-34. Moreover, the dried coating is intended to form an adherent substrate for a subsequent organic coating, such as paint or enamel. See, e.g., col. 2, line 46.

Schneider contains no teaching or suggestion that his coating could be used with any other metal substrates. In view of the unpredictability of chemical reactions of different materials in different environments, it would not be obvious to the skilled artisan to apply the teachings of Schneider to a molybdenum substrate in a lamp environment.

Moreover, while Schneider does disclose one of the alloying elements claimed by Applicant, i.e., Mn, the other five cations disclosed, Bi, Sb, Sn, Zn and Mo, are not the same as the other three alloying elements claimed by Applicant in claim 1, i.e., Co, Fe and B.

Thus, Schneider actually leads the skilled artisan away from the group of alloys claimed by Applicant.

Accordingly, claims 1 and 4 are patentable over the combination of Meijer and Schneider, and the rejection should be withdrawn.

In conclusion, Applicant respectfully requests that

the Examiner withdraw the rejections and objections of record, allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,

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